21. (Amended) The apparatus as defined in claim 17 in which an air nozzle is disposed adjacent to a terminal end of the conveyor and diverts the material into a rejection bin.

REMARKS

Claim 21 has been amended solely to address the Examiner's objection under 35 U.S.C. 112 regarding a lack of antecedent for the air nozzle, and not in response to any other objection. A marked up version of amended claim 21 showing the addition and deletion is attached.

The applicant respectfully traverses the Examiner's rejection under 35 U.S.C. 102, and submits that the main claims as filed are allowable.

The Examiner has characterized Shield's detector 24 as a "detector for detecting ultraviolet light" whereas in fact Shields expressly teaches "a camera 24 for capturing images" (col. 5, line 61), which is specifically designed to detect **visible** light, not ultraviolet light. The Examiner characterizes Shields as having "an optical filter 25 and 26 to eliminate components of diffusely reflected light outside of the ultraviolet range" whereas in fact Shields expressly teaches "a base lens 25 and a custom, optical comparator, telecentric, gauging lens 26" which "combination of optics provides a 4 inch by 4 inch field of view" (col. 7, lines 12 to 18), which is not a filter at all but instead merely confines the field of view. In fact, Shields does not even measure diffusely reflected light at all; he takes his images **through** the web of paper (col. 6, lines 11 to 14 and Figure 2).

The reasons for these differences are because the objects of Shields' invention are completely different from those of the subject invention. Shields is interested in the paper making process, i.e. when pulp is machined into paper. As such Shields is looking at the 'web formation' appearance. Web formation, as indicated in Shields' disclosure, is the formation of the fiber network when paper is made from pulp, and is a strictly visual characteristic. The web formation of paper will determine the distribution of voids in the paper, and hence the transmission of light *through* the paper will produce a pattern that describes the web appearance of the pressed pulp.

Thus, by design, Shields' machine sees what a human eye sees. There is no mention in Shields of ultraviolet (UV) light or lignin detection; there is no mention of UV reflectance measurement. Shields' invention involves transmission of light in the visible wavelengths. There is no teaching

or suggestion that the reflectance of ultraviolet light can be used to assess the presence of lignin. The only mention of lignin in Shields' disclosure (col. 1, lines 12-19, and 53-57) merely states that the presence of lignin in 'recycled pulp' can have an impact on the formation consistency, i.e. it is one of properties that must be controlled to avoid undesirable characteristics of the pulp. In fact, the present invention renders Shields' process totally unnecessary, because it removes the high-lignin content paper before recycling, and thus before it reaches the pulping stage, thus eliminating the need to control lignin in the post pulping process as Shields does.

Shields' process is not only different from the present invention; it would not actually work to identify high amounts of lignin in paper, because it operates only in the visible spectrum. The present invention has the unique advantage of differentiating between sheets that have the same visual characteristic, i.e. both appear white, based on the chemical content (lignin). Shields' invention would not differentiate between these sheets at all, because they are visually identical.

The main claims as filed recite:

Claims 1 and 15 – "a detector for detecting **ultraviolet light** and generating an electrical signal **proportional to an intensity of detected ultraviolet light**, the detector being positioned to detect ultraviolet light **diffusely reflected** off of the material" and "an **optical filter** disposed between the material and the detector **to eliminate components of diffusely reflected light outside of the ultraviolet range**."

Claim 8 – "detecting **an ultraviolet component** of the light **diffusely reflected** off of the material."

These elements clearly distinguish over Shields, which teaches neither detecting ultraviolet light nor detecting diffusely reflected light.

The applicant accordingly submits that claims 1 to 22 are allowable. Favourable reconsideration and allowance of this application are respectfully requested.

This response is accompanied by a Petition for an Extension of Time of one month. The Commissioner is authorized to charge the required fees to our Deposit Account No. 500663. A duplicate of this page is enclosed if required for this purpose.

Executed at Toronto, Ontario, Canada, on March 5, 2002.

ZAHEER KHALFAN

Mark B. Eisen
Registration No. 33088

MBE:lf
Response020305
Encl. Duplicate of signature page
Marked up version of amended claim 21
Petition for Extension of Time (in duplicate)

Marked Up Version of Claim 21 Showing Amendments:

21. (Amended) The apparatus as defined in claim 17 in which [the] an air nozzle is disposed adjacent to a terminal end of the conveyor and diverts the material into a rejection bin.